

CLAIMS

1. A dental hand instrument having parts that are moved relatively to each other while in surface contact with each other, and also having a lubricating material for lubrication of said parts, **characterized in that** at least one of said parts is coated over at least part of its surface (52, 53) with a lubricating substance.
2. A dental hand instrument as defined in claim 1, characterized in that said lubricating substance is designed such that it is transferred from the part carrying said coating to the uncoated part when said parts are in motion.
3. A dental hand instrument as defined in claim 1 or claim 2, characterized in that a plurality of groups of parts that are moved relatively to each other and require lubrication are present and that, for all groups of parts that are moved relatively to each other, at least one of the parts has a coating capable of transferring lubricating substance, while different groups may optionally have different coatings.
4. A dental hand instrument as defined in any one of claims 1 to 3, characterized in that said lubricating substance and the mating surface (57) of the uncoated part (54) are such that the lubricating substance adheres to the mating surface of the uncoated part (54).
5. A dental hand instrument as defined in any one of claims 1 to 4, characterized in that the composition of said coating (52a, 52b, 53, 42, 43, 44) varies from its side adjacent the component to be coated toward its exposed surface.
6. A dental hand instrument as defined in claim 4, characterized in that the proportion of lubricating substance on the exposed surface of said coating (55) is greater than on the side adjacent the component to be coated.

7. A dental hand instrument as defined in any one of claims 1 to 6, characterized in that said coating comprises at least one carrier layer (52a, 42) attached to the surface of the coated part and at least one layer of lubricating substance (53, 43, 44).

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8. A dental hand instrument as defined in any one of claims 1 to 7, characterized in that said lubricating substance in said coating (53, 44) is a solid lubricating substance.

10 9. A dental hand instrument as defined in any one of claims 1 to 7, characterized in that said lubricating substance in said coating (53, 44) has embedded components which assume a liquid state during operation.

15 10. A dental hand instrument as defined in any one of claims 1 to 9, characterized in that said coating (53, 44) comprises a metal-doped, diamond-like carbon (DLC) layer.

20 11. A dental hand instrument as defined in any one of claims 1 to 9, characterized in that said coating comprises a polymer layer consisting of one or more sublayers (42, 43, 44).

12. A dental hand instrument as defined in any one of claims 1 to 11, characterized in that said carrier layer (42, 52a) is metallic.

25 13. A dental hand instrument as defined in any one of claims 1 to 12, characterized in that in the overall coating there are present further functional layers (52a, 52b, 42, 43), of which one is pressure-resistant.

30 14. A dental hand instrument as defined in any one of claims 1 to 13 characterized in that one or more layers of said coating have internal attenuation means.

15. A dental hand instrument as defined in any one of claims 1 to 14, characterized in that the electrical resistance of said coating varies with wear.
- 5 16. A dental hand instrument as defined in any one of claims 1 to 15, characterized in that one of the plurality of layers has an electrically insulating effect.
- 10 17. A dental hand instrument as defined in any one of claims 1 to 16, characterized in that said coating differs optically from the carrier material (51, 41).
18. A dental hand instrument as defined in claim 17, characterized in that the optical properties of said coating change with wear.
- 15 19. A dental hand instrument as defined in any one of claims 1 to 18, characterized in that said coating reduces the surface hardness or leaves it unchanged.
- 20 20. A dental hand instrument as defined in any one of claims 1 to 19, characterized in that at least one component of an antifriction bearing is provided with a coating as defined.
- 25 21. A dental hand instrument as defined in any one of claims 1 to 20, characterized in that at least one component of a plain bearing is provided with a coating as defined.
22. A dental hand instrument as defined in any one of claims 1 to 21, characterized in that, for power transmission elements, at least one sliding component and/or touching component and/or contacting component is provided with a coating as defined.
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23. A dental hand instrument as defined in any one of claims 1 to 22, characterized in that the components that are moved relatively to each other provide coupling or gear-shift functions.

5 24. A dental hand instrument as defined in any one of claims 1 to 23, characterized in that an additional lubricant is provided exclusively on those surfaces of parts which contact each other.

10 25. A dental hand instrument as defined in any one of claims 1 to 23, characterized in that said additional lubricant exhibits high adhesion and cohesion forces.

15 26. A dental hand instrument as defined in any one of claims 1 to 25, characterized in that a second non-bonded lubricant is present.

27. A dental hand instrument as defined in any one of claims 1 to 26, characterized in that the lubricating substance is in the form of a support for the lubricant or lubricants.

20 28. A dental hand instrument as defined in any one of claims 1 to 27, characterized in that said coating and/or said other lubricants are sterilizable.

25 29. A dental hand instrument as defined in any one of claims 1 to 28, characterized in that the lubricating material in said coating (53, 44) and/or said other lubricants are selected such that they are compatible with a lubricant of the prior art.

30 30. A dental hand instrument as defined in any one of claims 1 to 29, characterized in that said lubricating substance comprises a plurality of layers.